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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,590	07/23/2003	Dirk Heinrich	233812US0	7530

22850 7590 10/10/2006

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EXAMINER	
PADGETT, MARIANNE L	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,590	HEINRICH ET AL.	
	Examiner	Art Unit	
	Marianne L. Padgett	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/6/2006 & 8/3/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 14-21* is/are pending in the application.

4a) Of the above claim(s) *20 and 21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 & 14-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/6/2006 has been entered.

2. Applicants' amendment, which was discussed in the advisory action mailed 8/16/2006, is further discussed below, combined with previous arguments & discussion.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-11 & 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quresti et al. (523), in view of Winkle, Sr. et al. (5,176,755) or Creps (4,358,887), and further in view of Facer et al. (3,560,239) and Kamimura et al. (3,616,983).

Applicant has amended their claims to include limitations previously required in claims 12-13 in the independent claim.

As previously discussed, Quresti et al. (523) teach nylon coating metal tubing on the exterior via a sequence of steps that includes cleaning, then heating, then galvanizing, (then optionally metal treating, such as via a chromating or phosphating), then requiring drying, then priming with a sprayed liquid, then preheating via induction heating, then powder coating via a fluidized bed technique with over the fusible powder, such as nylon 11 or 12, then induction heating which produces a high gloss surface finish, i.e. smooth. Thereafter, Quresti has an additional fluidized bed coating, which is not excluded by applicants' claims, and cooling/quenching. Quresti teaches closely controlling the thickness of the coatings, where the thickness of the first powder coating is 2.5-4 ≈ 63-102 μm. See the abstract; figures; col. 1, lines 5-10 & 24-54; col. 2, lines 17-49 & 62-68; col. 3, lines 43-col. 5, lines 26 & 54-col. 6, lines 3, 11-30 & 37-41. Note during the induction post powder deposition heating that the coated material will inherently initially softened and smooth as it proceeds to heat sufficiently to melt. Note that induction heating inherently uses radio frequencies and while Quresti does not disclose what frequencies are employed, neither does applicant's relative term of "medium frequency" require any specific range of frequencies to be used.

It is noted that Quresti et al. when discussing fluidized bed processes on col. 4, lines 60-68, teach that such processes are known in the art and cites USPN 3,616, 983 to Kamimura et al. as employing such processes. While the primary reference has a schematic flow diagram instead of a fully illustrated apparatus structure, Kamimura et al, whose processes are stated to be used in Quresti et al., shows apparatus schematics that incorporate the heater 34, which may be inductive heating, as attached to the input of the fluidized bed structure, inclusive of fluidized type dipping systems or fluidized type

electrostaticspray systems (figure 1B, 5-9; col. 3, lines 25-col. 4, line 44) including flow directions from all angles or from below, hence the apparatus/method of Quresti et al. that employs those of Kamimura et al. can be considered to incorporate the flow direction from above & the inductive heaters in the structure of the fluidized bed basin, since how or where they are incorporated in the fluidized beds/basins' structure is not specified by the claim language, so is inclusive of incorporation at inputs or outputs, thus consistent with taught process sequences, i.e. the inclusion of claims 12-13 into the independent claims as written, is not seen to provide patentable significance with respect to teachings of applied prior art, particularly the primary reference, as it incorporates the teachings of Kamimura et al.

It was previously noted that, Quresti et al. does not teach that pulverulent fusable powder may be formed of a precipitated powder, nor do they provide a mean deviations for their coating thickness or disclose and if they are sprayed priming liquid contains a suspension a solution or a powder. It would have been obvious to one of ordinary skill in the art to employ conventional means of initially forming a powder source material, which includes precipitating nylon materials from solution, which one may then mill to get the desired size of the pulverulent polymer, because use of a precipitated powder would require less work to get a powder to the desired size than starting with a solid block of polymer to grind.

As Quresti et al. teaches closely controlling thicknesses of the powdered nylon coatings, it would have been obvious to one of ordinary skill in the art that the mean thickness deviations would have been minimized, hence expected to be controlled within limits as claimed by applicants.

As suspensions or solutions are typical forms of liquid coating materials that may be sprayed and used as primers, it would have been obvious to one of ordinary skill in the art to use such typical means of formulating a liquid priming material due to suggestions of the primer being a liquid and expectations of their being effective means of delivery. Given that suspensions and solutions generally involve the use of solvents the subsequent preheating step would inherently cause evaporation of any solvent present to occur.

As previously discussed the claims require induction heating using frequencies of 2000-10,000 Hz, i.e. 2-10 kHz. While Quresti et al. does not disclose any particular frequency for use in their induction heating process to melt the powdered fusable powder, such as nylon, it would have been obvious to one of ordinary skill in the art to look to the prior art for appropriate frequencies at which to fuse the plastic powders as taught. Creps (abstract; col. 3, lines 33-43; and col. 5, lines 56-63) teach plastic coating metal pipes with use of the induction heaters employing 3000 Hz to melt plastic particles adhering thereto, and thus create a clear plastic coating over the entire surface of a pipe. Alternately & analogously, Winkle, Sr. et al. (abstract; col. 4, lines 39-53; col. 5, on 43-col. 6, line 15) teach coating a metal strip with a plastic powder that is melted via induction heating, where a low frequency of less than 10 kHz is preferably used, with teachings that the frequency employed depends on thicknesses of materials involved. From either of these teachings it would have been obvious to one of ordinary skill in the art to determine via routine experimentation the appropriate frequencies to employ in Quresti et al.'s induction heating process in order to melt the taught fusable powders such as nylon, using suggested frequencies as the starting point for that routine experimentation, which would therefore be expected to provide usable frequencies as claimed due to the similarity of materials involved both as coating and substrate.

As previously discussed, Quresti does not in the body of it specification have explicit details of various claimed air movement systems employed in various heating and fluidized in steps, however Facer et al., who is teaching an analogous process to be employed to coat wires or like elongated structures, teach air movement in the various steps, such as fans or suggested air manifolds or air seals, where it's particularly noted that the fluidized bed powder coating chamber illustrated in figure 3 has on the bottom diffusion board 74 through which air passes to maintain the bed in the fluidized state, with inner wall 82 of manifolds 78 having closely spaced holes that are connected via conduit 86 to suction fan 88, thus having positioned above the object being coded in air system which draws err out of the chamber thus flushing it (col. 2, lines 35-40 & col. 3, lines 25-35). Hence, it would have been further obvious to one of

ordinary skill in the art to employ such conventional means for air movement, as they would have provided affects as discussed in Facer et al., such as for the ability to draw off fumes via suction caused by a fan, which would have been equally advantageous in Quresti et al, who suggests any known electrostaticspray or electrostatic fluidized bed processes known in the art may be employed (col. 4, lines 60-65), and would have provided cumulative fluidized that processing details/instructions to those provided by Kamimura et al. suggested in Quresti et al.. In Facer et al, see figures; abstract; col. 1, lines 54-71+; col. 2, lines 34-66; col. 3, lines 1-62.

Concerning "one or more metal float side panels position below the pipe", the limitation does not say what is being guided, however presumably it is the fluidized material or the gas fluidized in it, etc., and it is noted that any surface with in the chamber will act as a guide towards fluidized materials in the chamber, including those below the substrate being passed through it, thus reading on possible meanings of flow guide panels. The materials that they are made out of (as the examiner assumes that metal is what they're made out of not what is being guided) would have been expected to have been made of a durable material, which for processing chambers typically constitutes metal, hence it would've been obvious that one of ordinary skill in the art to employ such conventional construction materials for chambers due to their required structural integrity. Note that Kamimura et al. is porous plate 41 in figures 8 or 9 could be considered a flow guide plate position is claimed (col. 4, lines 5-10 & 30-37), but does not discuss the material of which is made, hence one of ordinary skill would have been expected to choose its construction material as discussed above. The material of Facer et al.'s similarly positioned diffusion plate is also not disclosed.

5. Claims 1, 14 & 19 are rejected under 35 U.S.C. 103(a) over Church (3,108,022), in view of Winkle, Sr. et al. (5,176,755) or Creps (4,358,887).

In Church, it was previously noted to see figures; col. 1, lines 10-29; col. 2, lines 41-col. 3, line 11; col. 4, line 63-col. 5, line 48; col. 6, line 52-col. 7, line 6, etc. it is further noted that while figure 1

illustrates an induction coil 31 that is separate from but just before the entrance to the fluidized bed tank 10, they teach alternatives for the coating process of "preheating [substrate] progressively as it passes into and through the bad or heating it after it has entered the bed" (col. 3, lines 4-8), with further discussion stating that "the articles to be coated must be heated to a suitable temperature before entering the bed or as soon thereafter as possible so as to affect coalescence of the particles of coating material thereon and one suitable means for affecting this heating is here illustrated as being in the form of an electrical induction coil 31 supported upon the outside of wall 28 in alignment with the entrance opening 29. Alternatively, if desired the articles to be coated may be heated in any suitable oven means, not shown herein, prior to transferring the articles to the fluidized bed" (emphasis added, col. 4, lines 42-51). Therefore, Church of et al. is inclusive of use of induction coils for heating, where they are attached to the actual fluidized bed tank, hence reading on the claim of "fluidized-bed coating basin comprising an induction coil", since Church et al. provides the option for the coil been explicitly attached to the tank/basin, as well as explicit teachings that the heating may actually occur within the fluidized bed.

With respect to flow systems, note that Church et al. employs a foraminous plate 12, through which air is guided at the bottom of the chamber (col. 3, lines 68-col. 4, line 14), with a system at the top of the tank having a cyclone unit 26 for flushing air out of the system via suitable pumps, where the system may also include a downwardly directed conduit that is not shown to reintroduce fine solids into the fluidized bed (col. 4, lines 15-33), thus reading on possible meanings of applicants err flushing guide panels, noting arguments on obviousness of material for the guide panels are analogous to those supplied above in section 4.

As previously noted Church does not provide specific teachings of frequencies employed, however as discussed above in section 4 in view of prior art induction heating processes for analogous purposes would have provided obvious starting points for routine experimentation, which would have been expected to provide optimized and/or useful frequencies as claimed.

6. Applicant's arguments filed 8/3/2006 and discussed above have been fully considered but they are not persuasive.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

9/30/2006

MARIANNE PADGETT
PRIMARY EXAMINER